

**SALTON SEA
HYDROLOGIC TECHNICAL WORKGROUP
MEETING NOTES**

November 8, 2007

9:00 – 1:30

**University of California, Riverside - Palm Desert Graduate Center
Palm Desert, CA**

Welcome and Introductions

Jerry Boles, Department of Water Resources (DWR), welcomed the attendees and led introductions of those present (see attached list).

Workgroup Purposes

Jerry outlined the purposes of the workgroup, which include:

- develop monitoring and assessment plan and goals and objectives for long-term hydrologic monitoring for the Salton Sea ecosystem
- identify existing information
- identify long-term hydrologic data needs
- develop long-term hydrologic monitoring program

The workgroup briefly reviewed the purposes of the workgroup and concurred.

It was emphasized that the legislature has not yet selected a preferred alternative, however, funding was allocated in the Governor's 2007-2008 budget to continue to collect information. The Preferred Alternatives Report outlined four periods, Period 1 is for implementation of the Five Year Plan, Period 2 would include major construction, Period 3 would include construction completion, and Period 4 would be operation and maintenance of the project. We are undertaking components of the Five Year Plan, including development of long-term monitoring, that are common to any alternative that the Legislature or Governor may ultimately select.

Monitoring and Assessment Plan Goal

The various workgroups will be responsible for developing Monitoring and Assessment Plans (MAPs). These will include:

- Air Quality and Climatological Data
- Biological Data
- Hydrological Data
 - Water quality
 - Stream flow
 - Groundwater
- Geographic/Geology Data
- Socioeconomic Data

- Data Management

The goals and objectives for development of the Monitoring and Assessment Plan (MAP), which were developed at an earlier meeting hosted by USGS, were presented and briefly discussed.

The MAP Goal is to implement a data collection, analysis, management, and reporting system to inform and guide management actions for the restoration of the Salton Sea ecosystem. Workgroup members emphasized that development of standards and reporting tools is an important goal of the workgroup. Examples of datasets that might need standardization are the USGS and IID elevation datasets.

The MAP objectives are:

- conduct a retrospective analysis of data to determine their relevance/applicability for inclusion into the MAP
- incorporate relevant existing data into the MAP
- measure and assess changes from reference conditions to the Salton Sea ecosystem
- provide information to refine hypotheses of ecosystem functions
- provide information to assess performance of project implementation and management actions
- store, manage, and make publically available monitoring data in a timely manner

The importance and role of the retrospective analysis was discussed. For the most part, the intent is not to make an effort to standardize past datasets, but to standardize moving forward. The retrospective analysis is important so that past data is not lost.

The workgroup concurred with the goal and objectives.

Historic and Current Hydrologic Monitoring in the Salton Sea Basin

A list of agencies with past and current data collection efforts was reviewed. These include:

- US Bureau of Reclamation
- Colorado River Basin Regional Water Quality Control Board
- State Water Resources Control Board
- US Geological Survey
- Imperial Irrigation District
- Imperial County Farm Bureau
- Coachella Valley Water District
- Torres Martinez Tribe
- CH2M HILL
- UC Riverside
- UC Davis
- San Diego State University
- Redlands Institute
- International Boundary and Water Commission

- Department of Fish and Game
- US Fish and Wildlife Service
- County Fire Stations, National Weather Service, and CIMIS (climate data)
- Citizen's Congressional Task Force on the New River

Redlands Institute Efforts

Serene Ong, Redlands Institute, presented information regarding the data management activities Redlands is undertaking pursuant to a Proposition 50 water quality grant. Under the grant, Redlands is developing a GIS-based tool for the Total Suspend Solids (TSS)/Sedimentation Total Maximum Daily Load (TMDL). The outcomes of the project are to be: efficient use of data, better access and better quality data, and standardized methods for collecting, formatting, and reporting data.

Redlands has collected water quality monitoring data from the Regional Board, IID, and Reclamation. They have developed a relational database that is compliant with the SWRCB Surface Water Ambient Monitoring Program (SWAMP) database standards. Further, the database is accessible via a web-based GIS browser.

Key efforts that Redlands has undertaken include:

- updating the National Hydrography Dataset (NHD) to include canal and drain information, including the directionality of flow
- collection and review of Regional Board, IID, and Reclamation TSS and turbidity datasets
- collection of agricultural practices information from the Imperial County Farm Bureau
- Delineation of drainsheds
- Delineation of farm plots (digitized aerial photography, and included information regarding canal/gate serving the plots)
- Owner/operator information (Imperial Assessor, IID)

USGS

Greg Shellenbarger, USGS, reviewed past and current USGS data collection efforts, including flow gages, water quality stations, and groundwater monitoring stations. In addition, Kathy Kuivala, USGS Sacramento, has performed four studies on water quality from 1996 through 2007. These studies focused on TSS, bed sediments, and current use pesticides. There were 6 sites located within the Sea, one on the Whitewater River, and several sites in the Imperial Valley. A total of 25 pesticides have been detected in the drain water, including current use and legacy pesticides. Levels of carbofuran, diazinon, and chlorpyrifos (current use agricultural pesticides) were above aquatic toxicity benchmarks. Sediment toxicity due to four pyrethroid pesticides has been found to be additive.

Al Kalin noted that spikes of DDT are sometimes noted following storm events, and related to CALTRANS stormwater conveyances. Vast amounts of the desert were treated with DDT, which remains in the soil even today.

Bureau of Reclamation

Chris Holdren reported on the Reclamation monitoring, which includes quarterly sampling at three Sea sites, each of the River outlets, and in association with the constructed wetlands. The quarterly sampling has been conducted since 2004 and includes nutrients, salts, TSS, chlorophyll, selenium, selenate, and selenite.

UC Riverside

Michael Anderson, UC Riverside, reported on the monitoring he is conducted. For a period spanning 15 months, data were collected on a biweekly to monthly basis at the three Sea stations monitored by Reclamation. Parameters included temperature, dissolved oxygen, hydrogen sulfide, volatile organic sulfur species, and dimethyl sulfide.

Based on these data, it can be reported that the Sea demonstrates the highest dimethyl sulfide concentrations ever recorded.

Harry Ohlendorf commented that dimethyl selenide concentrations would also be a useful parameter.

CVWD

Dan Parks, CVWD, reported that under a cooperative study with the USGS, CVWD collects water quality and flow data for 27 drain sites. Parameters include general minerals and metals. In addition, at Avenue 72, the Whitewater River is monitored for priority pollutants. These data are public through USGS.

There are two nested piezometer wells near the Sea to monitor salinity intrusion. There is a network of CVWD wells, with regular monitoring of depth to water, general minerals, and arsenic.

Throughout the drainshed there are climate data stations (rain gages, wind direction/speed, air temperature), which are operated as part of the flood prevention and monitoring program.

The data are stored in flat files as part of a legacy data management system at the District; they are not in a relational database.

IID

Steve Charlton, IID, reported on IID's Drain Water Quality Improvement Program (DWQIP) monitoring, which includes monitoring of 7 major drains on a monthly basis, and 18 minor drains on a quarterly basis. Monitoring parameters include TSS, turbidity, nitrogen, phosphorus, and field parameters.

The Sea is monitored twice a year for cations, anions, and salinity. Rivers are monitored monthly for the same parameters.

Historic monitoring included selenium monitoring from 1996 to 1998 at a few sites.

Monitoring is being conducted on the 29 direct drains for selenium, as part of IID's mitigation measures. This includes quarterly monitoring of the 29 drains, and more frequent monitoring in April and October on 7 of the drains. Parameters include total and dissolved selenium speciation, fish tissue monitoring, organic detritus, midge larvae, and sediment. Reports are available for Year 1 and Year 2.

Next Steps

Harry Ohlendorf, CH2M HILL, presented the USEPA Data Quality Objectives process, which includes seven steps. The process is shown below:

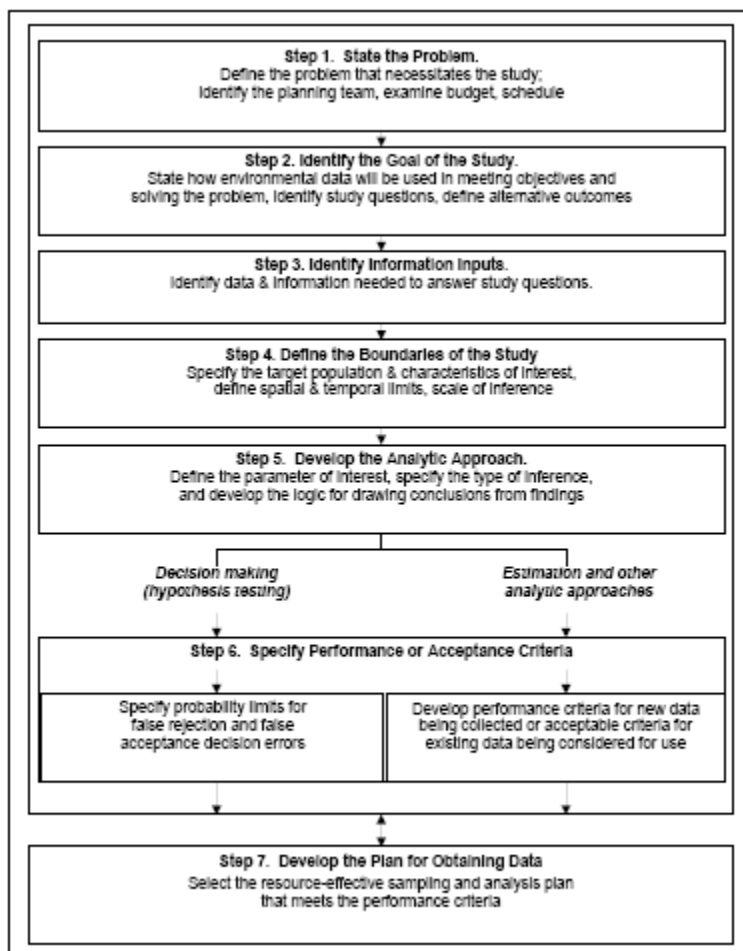


Figure 2. The Data Quality Objective Process

This process was briefly discussed and the workgroup concurred that it provided a good framework for moving forward with the development of the MAP.

DWR will convene a second meeting of the Hydrologic Workgroup within a month.